V. SIP ANALYSIS

A. SIP Commitment: Emission Reductions Claimed

In November 1994, ARB submitted the 1994 Ozone SIP to U.S. EPA. This submittal included BAR's commitment to adopt and implement an Enhanced I/M program to obtain the emission reductions assumed in the SIP for progress and attainment. The 1994 SIP submittal included the official SIP emission reductions for Smog Check that were ultimately approved by U.S. EPA. In June 1995 and January 1996, ARB submitted the Enhanced I/M regulations adopted by BAR to fulfill its commitment. These 1995 and 1996 submittals describe the program design elements, but did not affect the emission reductions relied on in the 1994 SIP.

As described in Chapter I, California's SIP relies on emission reductions attributed to the Enhanced I/M program to demonstrate attainment in six nonattainment areas. The emission reductions associated with the Enhanced Smog Check program in the 1994 SIP are shown in Table V-1. The reader should note that in this report, we use HC and reactive organic gases (ROG) interchangeably. The emission reductions shown represent the additional benefit attributed to the Enhanced I/M program, beyond those benefits already claimed for the Basic I/M program which was implemented in 1990. As Table V-1 shows, the emission benefits attributed to Enhanced Smog Check in the SIP are highest in 1999. Emission benefits attributed to Enhanced I/M are lower but still sizeable in subsequent milestone years. Because the Enhanced I/M commitment is largest in 1999, some of the subsequent tables in this chapter provide data for 1999 rather than for all milestone years. Adjustment factors for transportation agencies for use in conformity analyses are provided in Appendix B of this report.

In 1999, the South Coast Air Quality Management District prepared a revised 1999 SIP for the federal ozone standard based on the EMFAC7G vehicle emissions model. On April 10, U.S. EPA published approval of the revised 1999 SIP. The emission reductions claimed for the South Coast in the 1994 SIP are shown in Table V-1. We will provide the emission impacts for the South Coast using EMFAC7G in a separate document. We have provided the Southern California Association of Government with new emission factors for conformity analysis in EMFAC7G.

The San Joaquin Valley was scheduled to attain the federal one-hour ozone standard in 1999, and failed to do so. Measured ozone levels in the Valley are still well above the standard. U.S. EPA is preparing to "bump up" the San Joaquin Valley to a severe classification with an attainment date of 2005, requiring the Valley to develop a new SIP and new controls. Based on the existing SIP, we expect the Valley will need to reduce current emissions by 20 percent or more to attain.

Because the emission reductions from Enhanced I/M in the 1994 SIP are based on EMFAC7F, we must compare the actual benefits of Enhanced I/M to the commitment in EMFAC7F as well. The benefits of Enhanced I/M in EMFAC7F will differ from the draft EMFAC2000 (or EMFAC7G). However, for the purposes of our legal commitment, we must compare emission reductions in the "currency" of the applicable plan.

Table V-1
Emission Reductions (tons per day) from Enhanced I/M in the Approved 1994 Ozone SIP
by Nonattainment Area for Each Milestone Year[1]
(EMFAC7F)

Nonattainment Area	1999			2002			2005			2008			2010		
	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx
San Diego[2]	9.3	7.3	16.6	--	--	--	--	--	--	--	--	--	--	--	--
San Joaquin Valley[3]	4.3	5.0	9.3	--	--	--	--	--	--	--	--	--	--	--	--
Sacramento Region	5.4	5.7	11.1	6.3	6.5	12.9	5.2	6.4	11.5	--	--	--	--	--	--
Ventura	1.6	1.9	3.5	1.8	2.0	3.9	1.4	1.9	3.3	--	--	--	--	--	--
Antelope	0.5	0.4	0.9	0.6	0.5	1.1	0.5	0.4	0.9	--	--	--	--	--	--
Coachella	1.9	1.9	3.8	2.4	2.1	4.5	2.1	2.4	4.4	--	--	--	--	--	--
South Coast	34.8	32.4	67.1	40.3	35.6	75.8	32.5	33.0	65.6	30.2	34.8	65.0	26.2	31.1	57.4
TOTAL	**57.8**	**54.5**	**112.3**	**51.4**	**46.7**	**98.2**	**41.7**	**44.1**	**85.8**	**30.2**	**34.8**	**65.0**	**26.2**	**31.1**	**57.4**

[1] Numbers may not add due to rounding.
[2] Enhanced I/M was not needed to demonstrate attainment in San Diego in the 1994 Ozone SIP, but was identified as a contingency measure.
[3] The commitments shown for the San Joaquin Valley are based on the 1994 SIP. The Valley must prepare a new SIP showing attainment by 2005.

B. SIP Commitment: Emission Reductions Achieved

We used roadside data and our current understanding of the emission impacts of the Enhanced I/M program, as well as our knowledge of the assumptions that underlie the SIP, to determine what portion of the reductions claimed in the SIP have been and will be achieved. As mentioned in Chapter I, it is necessary to determine SIP credit in terms of "SIP currency." *The actual tons of pollution reduced calculated from the roadside test results cannot be compared to the tons of emission reductions cited in the SIP.* Since preparation of the 1994 SIP, we have learned that the model that underlies the 1994 SIP, EMFAC7F, significantly underestimates motor vehicle emissions. Thus, to reduce motor vehicle emissions by 1 ton per day in SIP currency, it is necessary to reduce motor vehicle emissions by more than 1 real-world ton per day.

1. Effectiveness in Reducing Emissions

We had two main sources of information available to evaluate the current effectiveness of the Enhanced I/M program in reducing exhaust emissions: (1) the results of roadside testing conducted in late 1998 and 1999 (which are described in Chapter III), and (2) ARB's draft EMFAC2000 model (which is described in Chapter IV). Because the results of gas cap testing conducted during the roadside test program were not available at the time this report was prepared, the roadside data could not be used to determine the effectiveness of Enhanced I/M in reducing evaporative emissions. Thus, we relied on draft EMFAC2000 to model the current effectiveness of Enhanced I/M in reducing evaporative hydrocarbon emissions (although we cannot compare the actual emission reductions calculated with draft EMFAC2000 to the 1994 SIP commitments).

Because we have no roadside data for future years, we used the draft EMFAC2000 model to estimate the effectiveness of the Enhanced I/M program in reducing both evaporative and exhaust emissions in future years.

a. Roadside Testing

We used the roadside test results to determine the effectiveness of Enhanced I/M in 1999 for comparison to our SIP commitments. We interpreted the roadside before/after test results as follows:

- "Before" represents the fleet that had been tested only under the 1990 Basic I/M program; and
- "After" represents the fleet that had been tested under Enhanced I/M in 1998-1999, i.e., the fleet after Enhanced I/M implemented.

We interpreted the percent reduction in emissions from "Before" to "After" as the percent reduction in emissions due to the implementation of Enhanced I/M, below the emission rate existing under Basic I/M. Roadside testing included gasoline-powered light-duty passenger cars, light-duty trucks, and medium-duty vehicles. It did not

include heavy-duty gasoline-powered trucks (i.e., trucks greater than 8,500 pounds gross vehicle weight) or any diesel-powered vehicles. Thus, the roadside percent reduction in fleet average emission rate can be applied to gasoline-powered light-duty passenger cars, light-duty trucks, and medium-duty vehicles.

The overall percent reduction in fleet average emission rates in gram per mile (g/mi) results from many factors such as fail rate, fraud, repair effectiveness, etc. The emission rates for model years exempted from biennial I/M (i.e., pre-1974 and newest four model years) are set to be the same in the "after" fleet as in the "before" fleet. For exempted model years, the percent reduction due to I/M is therefore zero. Because it compares the entire "before" fleet to the entire "after" fleet, the roadside data takes into account the effect of model year exemptions, as well as fraud and repair effectiveness.

Roadside testing was conducted in late 1998 and 1999, when NOx cut points were set relatively high at approximately gross polluter levels. At the tail end of the 1998-1999 roadside testing, BAR lowered NOx cut points to more stringent levels in October 1999. Therefore, the roadside test results represent the effectiveness of the program in 1998 and 1999, but are *not* representative of the effectiveness of the program in reducing NOx after the tightening of the cut points in October 1999. The draft EMFAC2000 model shows that tightening the cut points in October 1999 nearly tripled the NOx emission reductions achieved.

b. Draft EMFAC2000

We used draft EMFAC2000 runs to model the effectiveness of Enhanced I/M in the milestone years between 2002 and 2010. In the draft EMFAC2000 runs for future years, we assumed the current Enhanced I/M program would continue to be implemented in future years. We did not assume any improvements to the design of the Smog Check program in future years or changes to the latest cut points, which were implemented in October 1999. The draft EMFAC2000 model run output used was presented in Chapter IV in Figures IV-1 to IV-9.

c. Evaporative Controls

At the time the 1994 pilot program was conducted, California was considering implementing a combined helium test and gas cap check to test the effectiveness of vehicles' evaporative emission control systems.[4] In the helium test, helium is injected into the fuel tank to confirm that the evaporative system is collecting vapors and routing them to the engine. California envisioned using the helium/gas cap check in lieu of the more intrusive evaporative test procedure which U.S. EPA suggested, i.e., pressure test of the fuel tank and measurement of purge flow from the carbon canister to the engine (pressure-purge test). The 1994 pilot program evaluated the potential effectiveness of the helium/gas cap check versus the potential effectiveness of U.S. EPA's pressure-purge test. To demonstrate that California's proposed Enhanced I/M program would

[4] Reference: Evaluation of the California Pilot Inspection/Maintenance (I/M) Program, Prepared for BAR, by Klausmeier Consulting and Radian Corporation, March 31, 1995.

meet the U.S. EPA Performance Standard, ARB relied on the evaporative emission fleet average rates modeled for the helium/gas cap check in its June 1995 and January 1996 submittals to U.S. EPA.[5]

Likewise, the 1994 SIP estimated the percent reduction in evaporative hydrocarbon emissions based on the assumption that the helium/gas cap check or a similar test would be implemented. Table V-2 shows the percent reduction in evaporative hydrocarbon emissions assumed in the 1994 SIP for each vehicle type and for the overall fleet of vehicles subject to Enhanced I/M for the year 1999.

In reality, California has implemented only a gas cap check as part of the Enhanced I/M program. Neither the full pressure-purge test nor the helium test was implemented. Draft EMFAC2000 models the effectiveness of the gas cap test based on data collected during the 1994 pilot program. Table V-2 shows the percent reduction in evaporative hydrocarbon emissions in 1999 due to the gas cap test, modeled with draft EMFAC2000 as described in Chapter IV. As described in Chapter IV, in later years, I/M achieves greater evaporative HC emission reductions due to OBD II working in concert with I/M. Because the gas cap test alone is less effective than the helium/gas cap test, fewer reductions in evaporative hydrocarbon emissions were accomplished than assumed in the 1994 SIP. Overall, draft EMFAC2000 shows that in 1999, evaporative emission inspections were only about 69 percent as effective as the 1994 SIP assumed they would be. To adjust for this loss in effectiveness and calculate the 1994 SIP currency emission reductions achieved, the emission reductions claimed in the 1994 SIP were multiplied by the adjustment factors shown in Table V-2.

Table V-2
Percent Reduction in Evaporative Hydrocarbon Emissions in the 1994 SIP for Each Vehicle Type (1999)

Vehicle Type	Percent reduction in 1994 SIP	Gas cap test percent reduction modeled in draft EMFAC2000	Adjustment Factor
Passenger Cars	17%	12%	0.70
Light-duty trucks	19%	12%	0.63
Medium-duty vehicles	20%	12%	0.62
Heavy-duty gas trucks	9%	12%	1.40
Overall Fleet Subject to I/M	17%	12%	0.69

d. Heavy-Duty Gasoline Vehicles

Because the roadside testing did not include heavy-duty gasoline vehicles, we used draft EMFAC2000 to estimate emission reductions from heavy-duty gasoline vehicles. Draft EMFAC2000 indicates that Enhanced I/M has no additional benefit for

[5] Pages 5-6, "Section 51.351 Enhanced I/M Performance Standard," of June 30, 1995 submittal to U.S. EPA.

exhaust emissions from heavy-duty gasoline vehicles beyond the emission reductions achieved by 1990 Basic I/M. This is explained by the fact that heavy-duty gasoline vehicles are not subject to loaded-mode testing. The primary differences between the 1990 Basic I/M program and the current Enhanced program are (1) that the repair-cost limit is higher under the Enhanced I/M program and (2) the addition of gas cap testing. Different gross-polluter cutpoints are also used in Enhanced I/M. Heavy-duty gas vehicles are subject to gas cap testing and thus receive the same evaporative emission benefits as light- and medium-duty vehicles.

e. Success in Reaching Effectiveness Specified in SIP

We used the following method to estimate the success of the current Enhanced I/M program in reaching the effectiveness specified in the 1994 SIP:

- Use draft EMFAC2000 to model the percent reduction in emission rates that would be achieved from the Enhanced I/M program specified in the 1994 SIP (i.e., the Enhanced I/M program described in the 1995 and 1996 SIP submittals). Calculate the percent reduction below the gram per mile emission rates for 1990 Basic I/M program for the years 1999 through 2010.
- For 1999, use roadside data to determine the percent reduction in exhaust emission rate due to the current Enhanced I/M program (see Table IV-2). For 1994 SIP currency purposes, the roadside test data for each model year was applied to the EMFAC7F travel fractions, rather than the draft EMFAC2000 travel fractions. This resulted in the following percent reductions: 12% HC, 6% NOx, and 10% CO.
- For subsequent years, use draft EMFAC2000 to model the percent reduction in emission rate due to the current Enhanced I/M program.
- Compare the percent reduction in gram per mile emission rate from the current Enhanced program to the percent reduction in gram per mile emission rate that would be achieved from the program specified in the 1994 SIP.

We used draft EMFAC2000 emission rates for each vehicle type, i.e., light-duty gasoline passenger cars, light-duty gasoline trucks, medium-duty gasoline trucks, and heavy-duty gasoline trucks. Using this method, a program that achieved the same reduction in emission rate as the program in the SIP submittals would be 100 percent effective, whereas a program that achieved only half the anticipated reduction in gram per mile emission rate would be only 50 percent effective.

Figure V-1 illustrates the method used to determine the success of the current Enhanced I/M program in reaching the effectiveness specified in the 1994 SIP. The arrows drawn on Figure V-1 compare the drop in gram per mile emission rate from 1990 Basic I/M to current Enhanced to the drop from 1990 Basic I/M to the 1994 SIP Enhanced.

Figure V-1
Passenger Car Exhaust Hydrocarbon Emission Rates:
Current Enhanced vs. 1994 SIP Enhanced, draft EMFAC2000

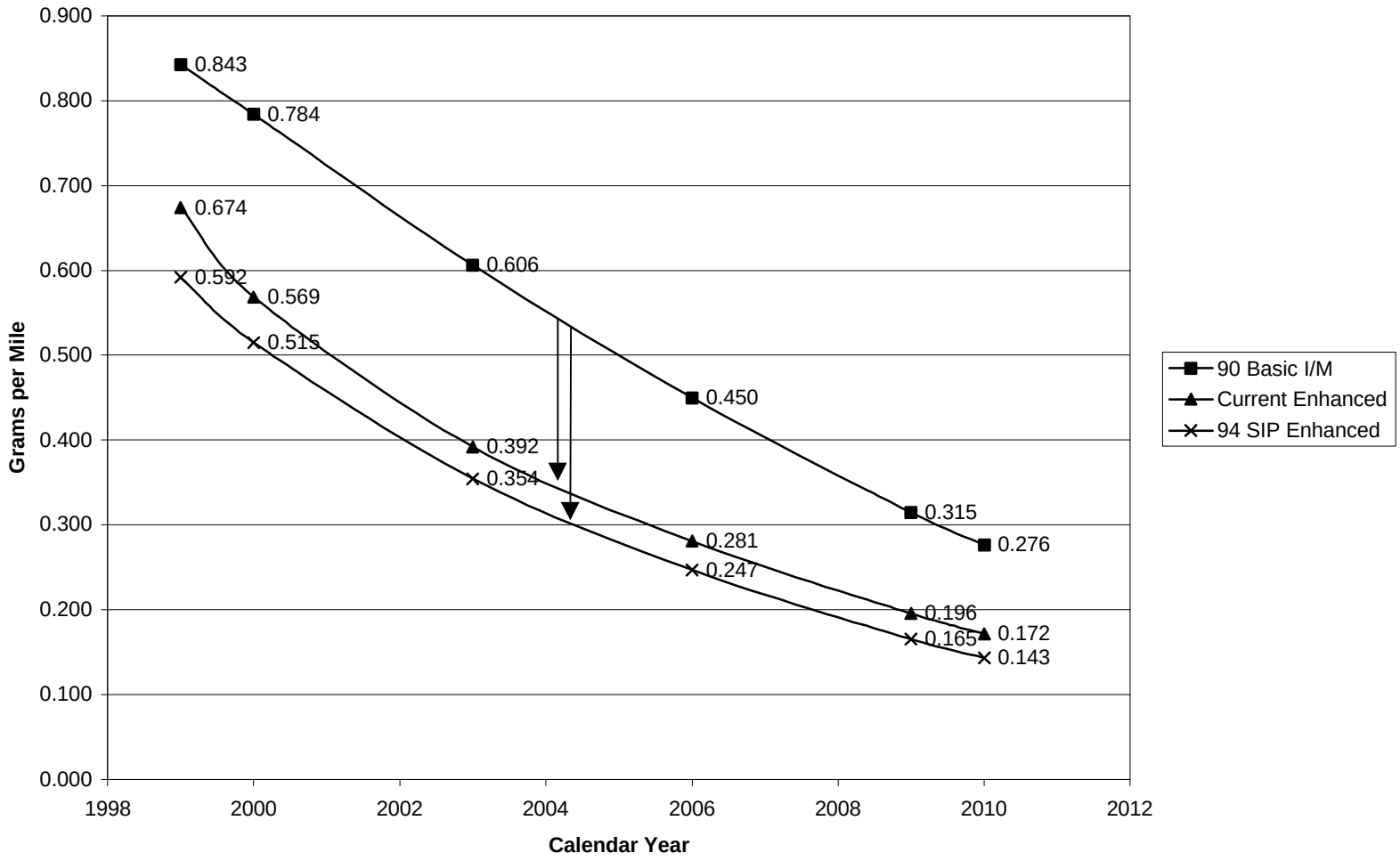

Table V-3 shows how well the Enhanced I/M program fared in 1999 in reaching the effectiveness specified in the 1994 SIP. The values in Table V-3 for $HC_{exhaust}$ and NOx are based on roadside data; the value for $HC_{evaporative}$ is based on the draft EMFAC2000 model. Effectiveness in 1999 ranges from 24 percent for NOx to nearly 70 percent for evaporative HC. The NOx effectiveness of the Enhanced program has improved significantly since the NOx cut points were lowered in late 1999. The draft EMFAC2000 model shows that the effectiveness increases to about 70 to 80 percent for exhaust HC, NOx, and CO in 2002 to 2010.

Table V-3
Effectiveness of Enhanced I/M Compared to Program Envisioned in 1994 SIP[1,2]
(1999)

$HC_{exhaust}$	$HC_{evaporative}$	NOx
42%	69%	24%

[1] Only includes program effectiveness. The percentages in this table do not represent the overall percentage of the SIP commitment achieved because they do not include the impact of incorrect SIP assumptions (i.e., assuming that more communities participate in Enhanced I/M program and that heavy-duty gasoline vehicles are subject to loaded-mode testing).
[2] $HC_{exhaust}$ and NOx are based on roadside data. $HC_{evaporative}$ is based on draft EMFAC2000 model output.

2. Portion of Fleet Subject to Enhanced I/M

Areas of California that do not attain the federal ozone standard are generally subject to either Basic or Enhanced I/M. Most urbanized areas with population greater than 50,000 that are within nonattainment areas included in the 1994 SIP are subject to Enhanced I/M. On the other hand, less densely populated portions of nonattainment areas are subject only to Basic I/M. Basic I/M, which does not utilize loaded-mode testing or Test-Only stations, results in fewer emission reductions than Enhanced I/M.

The 1994 SIP submittal that contains the official SIP emission reductions for smog check contains assumptions about which type of Smog Check program each area of the State has. The 1994 SIP submittal was prepared before the implementation of Enhanced I/M and included assumptions about which areas would receive Enhanced I/M. For most nonattainment areas, the1994 SIP assumed that a greater percentage of vehicles would be subject to Enhanced I/M than actually are. Table V-4 summarizes the 1994 SIP submittal assumptions about the areas and the percent of vehicles that are actually subject to Enhanced I/M. The largest discrepancy between the 1994 SIP assumptions for Smog Check program type and reality occurred in the Sacramento nonattainment area. The 1994 SIP incorrectly assumed that all portions of the Sacramento nonattainment area would receive Enhanced I/M; whereas, today, only about 79 percent of the Sacramento nonattainment area is subject to Enhanced I/M. Because the 1994 SIP overestimated the number of vehicles that would be subject to Enhanced I/M, it also overestimated the emission reductions Enhanced I/M would achieve.

Table V-4
Percent Vehicles in Enhanced I/M
in the 1994 SIP vs. the Actual Percent
Vehicles in Enhanced I/M[1] (1999)

Area	94 SIP: Percent Vehicles Assumed in Enhanced I/M	Actual Percent Vehicles in Enhanced I/M
San Diego	100%	97%
San Joaquin Valley	71%	69%
Sacramento Region	100%	79%
Ventura	100%	95%
Antelope	100%	100%
Coachella	100%	82%
South Coast	100%	98%
TOTAL FOR ALL ENHANCED AREAS	97%	93%

[1]Table V-4 is not meant to imply that the California Bureau of Automotive Repair did not implement Enhanced I/M in all areas required by federal regulations. Instead, the discrepancies shown are due to incorrect assumptions in the calculations underlying the 1994 SIP submittal.

To adjust for the overestimate in the number of vehicles subject to Enhanced I/M, we multiplied the emission reductions claimed for Enhanced I/M by the ratio of actual percent vehicles in Enhanced I/M to percent vehicles assumed in Enhanced I/M in the SIP. For example, in the case of Sacramento, we multiplied by an adjustment factor of 0.79 to account for the fact that only 79 percent of vehicles in the Sacramento nonattainment area are receiving Enhanced I/M.

3. Effect of 1997 Legislative Changes on Enhanced I/M

In 1997, the California Legislature passed legislation that exempted very old and very new vehicles from Smog Check, allowed waivers for the dirtiest vehicles, repealed annual inspections for certain vehicles, and reduced the dollar amount of the repair cost waiver. Until 2003, pre-1974 vehicles are exempted from Smog Check. In and after 2003, vehicles older than 30 years will be exempted.

The 1994 SIP did not foresee that these legislative changes would be made. For example, it assumed that all vehicles from model year 1966 and on would be included in Smog Check.

Both the roadside test data and the draft EMFAC2000 model runs that were used to evaluate the effectiveness of Enhanced I/M take into account the impact of the legislative changes on the Enhanced I/M program. For the current Enhanced program scenario, for example, the draft EMFAC2000 model takes into account that certain model years of vehicles are exempt from the program. In Chapter VI, we evaluate the

effect of model year exemptions – the most significant legislative change – on the effectiveness of the Enhanced I/M program.

4. Effect of 1997 Legislative Changes on Basic I/M

The primary purpose of our evaluation was to address impacts on the Enhanced I/M program. However, in the course of our evaluation, we also learned information relevant to the effectiveness of the Basic I/M program.

We used the draft EMFAC2000 model to evaluate whether the legislative changes in 1997 caused a loss in benefits from the Basic I/M program. We considered this effect both for vehicles subject to the Basic I/M program and for the portion of Basic benefits claimed for vehicles subject to the Enhanced I/M program. We ran the draft EMFAC2000 model for the 90 Basic I/M program described in Chapter IV and for the Basic program as currently implemented (i.e., biennial testing, model year exemptions for very new and very old vehicles, repair cost waiver at $450 or $250 through economic hardship extension, repair assistance program, gross polluters eligible for repair cost waiver, electronic transmission of smog-check results, current cut points, gas cap testing for evaporative emissions, etc.). We compared the fleet average emission rates from draft EMFAC2000 for the current Basic program to those for 90 Basic I/M. For the Basic program, we found that there is no net loss in HC or NOx emission reductions (from the 90 Basic I/M program) due to the legislative changes and, in fact, a small benefit. For hydrocarbon, the addition of gas cap testing reduces HC emissions and more than offsets the increase from vehicle exemptions. There is a small NOx benefit from exempting old cars from two-speed idle testing because two-speed idle testing can lead to repairs that lower HC and CO, but raise NOx emissions. We therefore concluded that we did not need to apply further adjustments to account for the effect of the legislative changes on the Basic I/M program. We may evaluate this effect further after the draft EMFAC2000 model is finalized.

C. Summary of Enhanced I/M Emission Reductions Achieved

We derived the overall SIP currency reductions achieved for each area taking into account the actual effectiveness in reducing emissions and the portion of each area's fleet subject to Enhanced I/M, as described in Section B. Table V-5 shows the 1994 SIP emission reductions claimed in each nonattainment area for Enhanced I/M for the year 1999, and the 1994 SIP currency emission reductions achieved. We estimate that overall we achieved about 43 tons per day of the 112 ton per day HC and NOx SIP commitment, leaving about a 70 ton per day combined HC plus NOx shortfall. As seen from the table, we have achieved about 60 percent of the HC commitment and (based on the gross polluter cut points in place during most of 1999) about 19 percent of the NOx commitment.

Table V-5 also shows the relative size of the emission reduction shortfall caused by reducing the portion of each area's fleet subject to Enhanced I/M, the lack of loaded-mode testing for heavy-duty gasoline trucks, and the lower than anticipated

effectiveness of Enhanced I/M. The largest fraction of the total 70 ton per day 1994 SIP currency shortfall, about 79 percent, is due to the effectiveness of I/M being less than the effectiveness anticipated in the 1994 SIP. This includes losses in NOx emission reductions and in both exhaust and evaporative HC. About 15 percent of the total shortfall is due to not achieving the anticipated emission reductions for heavy-duty gas vehicles. The smallest portion of the shortfall, about 6 percent, is due to the 1994 SIP overestimating the portion of fleet in certain areas that would be subject to Enhanced I/M. As seen in the table, even if the Enhanced I/M program was fully effective, we would only achieve 85 percent of our SIP commitment.

Table V-6 shows the 1994 SIP currency emission reductions achieved from Enhanced I/M in each nonattainment area for the milestone years 1999 through 2010.

Chapter VI discusses a number of options we have evaluated for improving the Smog Check program to make up some of the SIP shortfall from Enhanced I/M. ARB has also identified a number of measures that may provide extra emission reductions to offset some of the shortfall from Enhanced I/M. Because for some years in some areas, we have already used the additional reductions from these measures to offset other SIP shortfalls, credit toward offsetting the Enhanced I/M shortfall will vary by area and by year.

- Phase II reformulated gasoline: the full benefits from this regulation were not claimed in the 1994 SIP;
- Limits on combustion chamber deposits: additives used to meet our fuel regulations provided unanticipated emission reductions;
- Phase III reformulated gasoline: this measure was adopted in 1999;
- Emission standards for on-road motorcycles: this measure was not anticipated in the SIP and provides additional emission reductions; and
- 1994 SIP measures that were originally credited only in the South Coast Air Basin but which were adopted statewide: although only the South Coast was allowed to take credit for “long-term” measures in the SIP, many of these measures have since been adopted. Regulations to reduce emissions from light- and medium-duty vehicles in the future (Low-Emission Vehicle II) and off-road diesel equipment will provide unanticipated emission reductions in San Diego, the San Joaquin Valley, Ventura, Sacramento, and the Southeast Desert.

Table V-5
Emission Reductions Achieved in 1994 SIP Currency (tons per day)
from Enhanced I/M in Each Nonattainment Area, EMFAC7F[1]
(1999)

Area	SIP Commitment for 1999		Emission Reductions Foregone								Net Reductions for 1999	
			Portion of Fleet Subject to Enhanced I/M		No Loaded-Mode Testing for Heavy-Duty Trucks		Effectiveness of Enhanced I/M		Net Shortfall			
	HC	NOx	HC	NOx	HC	NOx	HC	NOx	HC	NOx	HC	NOx
South Coast	34.8	32.4	0.2	0.5	0.7	5.6	13.3	20.1	14.4	26.1	20.3	6.2
Ventura	1.6	1.9	0.0	0.1	0.0	0.2	0.7	1.2	0.8	1.5	0.9	0.4
Sacramento Region	5.4	5.7	0.4	1.0	0.1	1.0	2.0	2.8	2.5	4.8	2.9	0.9
San Joaquin Valley[2]	4.3	5.0	-1.2	0.0	0.1	1.2	2.1	2.9	1.0	4.0	3.3	0.9
Antelope	0.5	0.4	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.3	0.3	0.1
Coachella	1.9	1.9	0.1	0.3	0.0	0.4	0.7	0.9	0.8	1.6	1.1	0.3
San Diego[3]	9.3	7.3	0.1	0.2	0.1	0.9	3.6	4.8	3.9	5.8	5.5	1.5
Total	57.8	54.5	-0.3	2.0	1.1	9.3	22.7	33.0	23.4	44.2	34.4	10.3
Total-HC+NOx	**112.3**		**1.7**		**10.4**		**55.7**		**67.7**		**44.6**	

[1] This table is based on roadside test data, not on the draft EMFAC2000 model. Numbers may not add due to rounding.

[2] The commitments shown for the San Joaquin Valley are based on the 1994 SIP. The emission benefit (i.e., negative emission reduction foregone) shown under "Portion of Fleet Subject to Enhanced I/M" represents the benefits of gas cap testing in the basic portion of San Joaquin Valley. The Valley must prepare a new SIP showing attainment by 2005.

[3] San Diego relied on Enhanced I/M only as a contingency measure.

Table V-6
Emission Reductions Achieved in 1994 SIP Currency (tons per day)
from Enhanced I/M in Each Nonattainment Area for Each Milestone Year[1]

Nonattainment Area	1999			2002			2005			2008			2010		
	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx	HC	NOx	HC+ NOx
San Diego[2]	5.5	1.5	7.0	--	--	--	--	--	--	--	--	--	--	--	--
San Joaquin Valley[3]	3.3	0.9	4.3	--	--	--	--	--	--	--	--	--	--	--	--
Sacramento Region	2.9	0.9	3.8	3.9	3.6	7.4	3.1	3.4	6.6	--	--	--	--	--	--
Ventura	0.9	0.4	1.3	1.2	1.4	2.6	0.9	1.2	2.2	--	--	--	--	--	--
Antelope	0.3	0.1	0.4	0.4	0.3	0.7	0.3	0.3	0.6	--	--	--	--	--	--
Coachella	1.1	0.3	1.4	1.4	1.1	2.6	1.2	1.1	2.3	--	--	--	--	--	--
South Coast	20.3	6.2	26.6	25.9	23.0	48.9	20.8	21.1	41.9	18.7	20.4	39.1	16.6	17.3	33.9
TOTAL	34.3	10.3	44.6	32.8	29.4	62.2	26.3	27.1	53.4	18.7	20.4	39.1	16.6	17.3	33.9

[1] Numbers may not add due to rounding.

[2] Enhanced I/M was not needed to demonstrate attainment in San Diego in the 1994 Ozone SIP, but was used as a contingency measure.

[3] The commitments shown for the San Joaquin Valley are based on the 1994 SIP. The Valley must prepare a new SIP showing attainment by 2005.